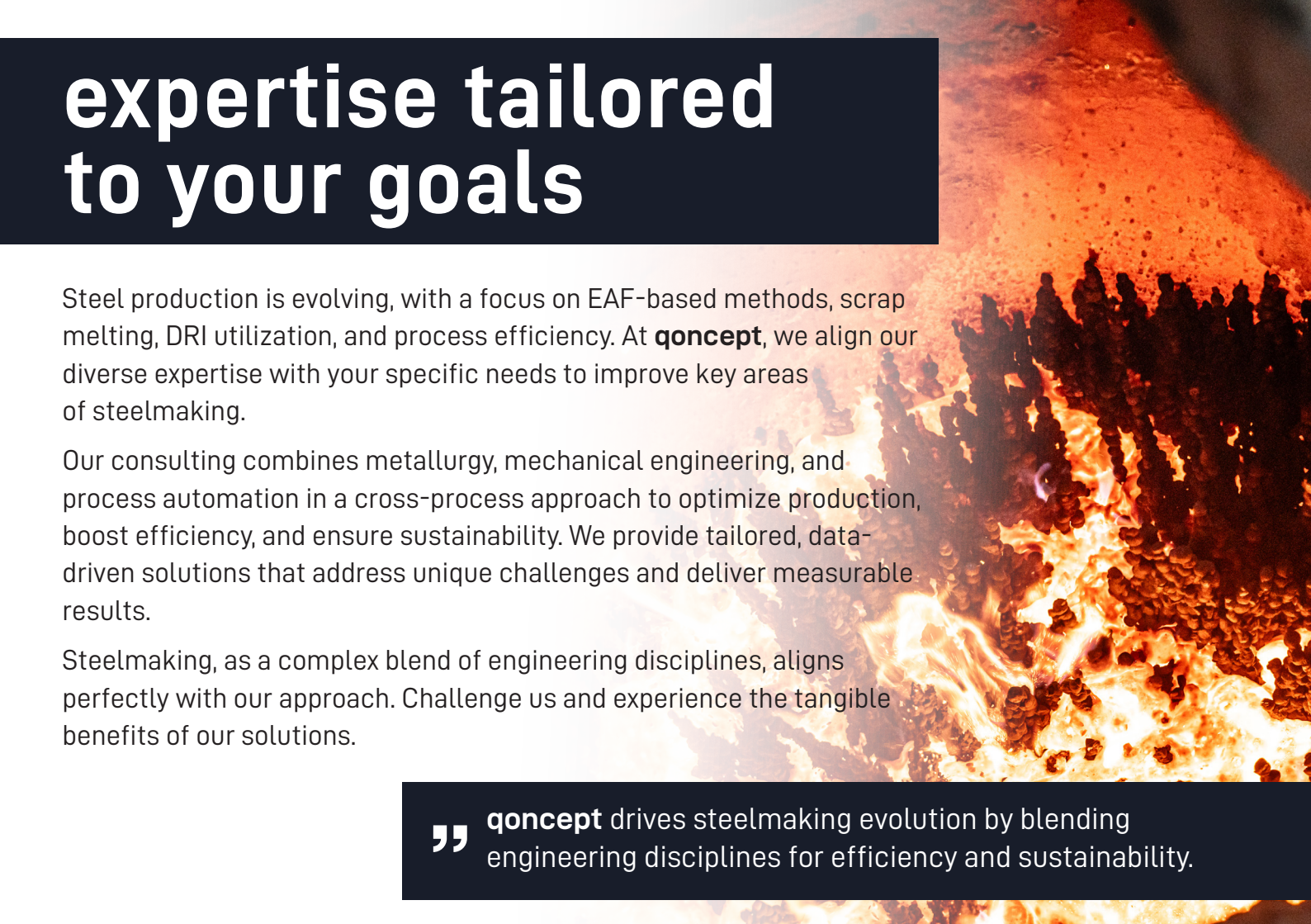


# Advancing Steelmaking through Metallurgical Process Optimization

Tailored consulting services for process optimization  
and metallurgical expertise

 oncept

# expertise tailored to your goals



Steel production is evolving, with a focus on EAF-based methods, scrap melting, DRI utilization, and process efficiency. At **qoncept**, we align our diverse expertise with your specific needs to improve key areas of steelmaking.

Our consulting combines metallurgy, mechanical engineering, and process automation in a cross-process approach to optimize production, boost efficiency, and ensure sustainability. We provide tailored, data-driven solutions that address unique challenges and deliver measurable results.

Steelmaking, as a complex blend of engineering disciplines, aligns perfectly with our approach. Challenge us and experience the tangible benefits of our solutions.

” **qoncept** drives steelmaking evolution by blending engineering disciplines for efficiency and sustainability.

# Why Choose Us

- **Characterization and Classification of Scrap**

Enhanced master data (analyses and properties) of raw materials for better steel analysis prediction, compliance with required steel analyses, and cost-optimized charge calculation.

- **Raw Material Yield**

Maximized metal yield through optimized oxidation and reduction reactions and improved control of residuals (Cu, Sn, Pb) to ensure steel purity and balance scrap and DRI input.

- **EAF Performance and Overall Furnace Efficiency**

Improved understanding through identification of cost drivers to reduce energy consumption by optimizing energy input, power-on times, DRI ratio, and foamy slag practices.

- **Entire Steelmaking Process**

Optimized temperature control, refining processes and targeted material additions from scrap yard to casting for greater process stability, steel quality. and efficiency.

- **Sustainable Steelmaking**

Better understanding of direct and indirect CO<sub>2</sub> emissions to develop targeted measures for low-carbon steel production.



At **qoncept**, we align our diverse expertise with our clients' goals to drive impactful improvements where it matters most.



# Key Services

## 1 EAF-Based Steelmaking & Process Optimization

- Scrap melting, charge mix optimization, and DRI/HBI integration for stable operations.
- Enhanced foaming slag practices and oxygen injection to improve furnace performance.
- Energy efficiency to maximize output and reduce operational costs.

## 2 Slag Metallurgy

- Slag fluidity and foamy slag control in EAF operations.
- Slag chemistry and basicity optimization and control across all process steps.

## 3 Secondary Metallurgy & Refining

- Desulfurization, deoxidation, reduction, and alloying strategies.
- Degassing (VD/RH) and decarburization of high-alloy and stainless steels (VOD/AOD).

## 4 Continuous Casting & Solidification Calculation

- Mold flow, EMS positioning, secondary cooling, and soft reduction optimization for defect-free steel.
- Proprietary solidification model for process analysis & caster design.

## 5 Sustainability & CO<sub>2</sub> Reduction Strategies

- Transition support from BF-BOF to EAF focusing on scrap and DRI feedstocks.
- CO<sub>2</sub> reduction via energy efficiency, alternative carbon and raw material strategies.

## 6 Data-Driven Process Optimization & Digitalization

- Real-time insight & predictive control with modeling, AI, and automation.
- Enhanced control & efficiency through monitoring, analysis, and machine learning.



### PERFORMANCE

Boost furnace and process efficiency with expert melting, refining, and casting strategies.



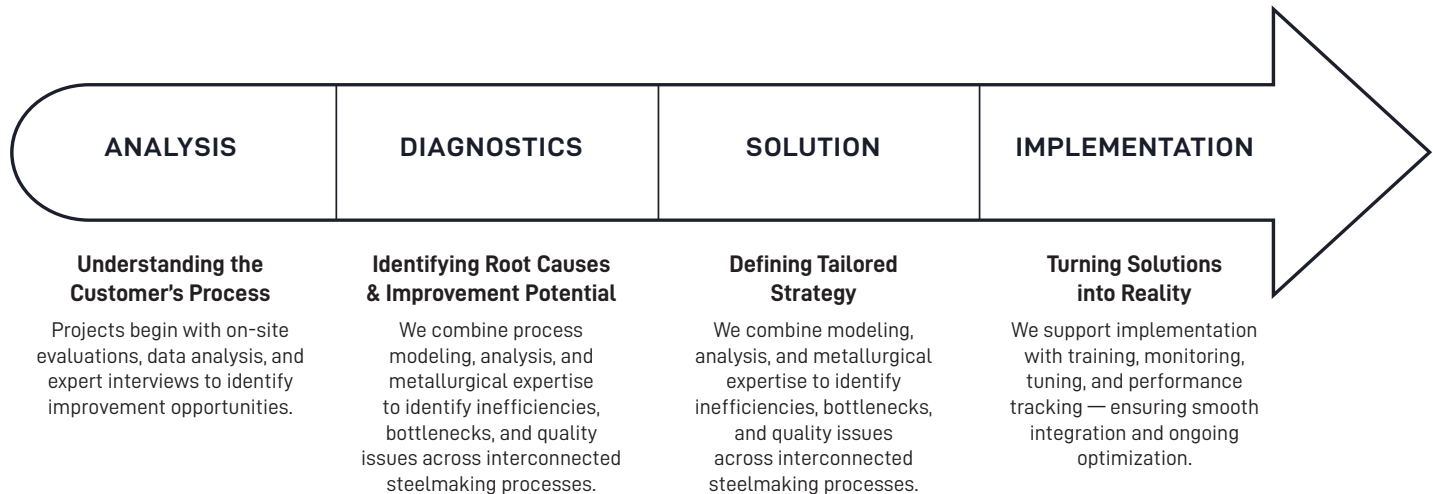
### QUALITY

Enhance steel quality through precise control of slag, chemistry, and solidification models.

# How We Support You

## every plant is different

that's why we combine structure with flexibility to deliver solutions that fit.



### SUSTAINABILITY

Reduce CO<sub>2</sub> emissions through process and resource optimization.



### INSIGHT

Gain real-time visibility and predictive control through modeling, AI, and data analysis.



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